



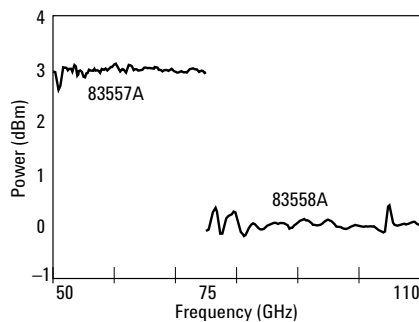
# Agilent 83557A/83558A 50 to 75 GHz/75 to 110 GHz mm-Wave Source Modules

## High performance in a small package

Utilize the Agilent Technologies 83557A/83558A mm-wave source modules to obtain high power, high quality signals covering the full waveguide bands of 50 to 75 GHz (V band) and 75 to 110 GHz (W band). These efficient frequency multipliers translate a 50 mW (+17 dBm) microwave signal (12.5 to 18.75 GHz) to a mm-wave signal at a very low cost compared to other alternatives. With their reliable, solid state design, these modules are small and lightweight and can be operated remotely from the driving source to better accommodate your measurement setup needs.

## High output power

With >+2 dBm to 75 GHz and >-1 dBm to 110 GHz, these mm-wave source modules can be used as LO's in mixer measurements and provide additional dynamic range for insertion loss/gain measurements. The output power is leveled to provide level control and improved source match at the device under test. Additionally, the output power level can be read from the front of the source, or on the 8349B amplifier, depending on your configuration.



Typical maximum leveled output power for V and W band mm-wave source modules

## Spectral purity

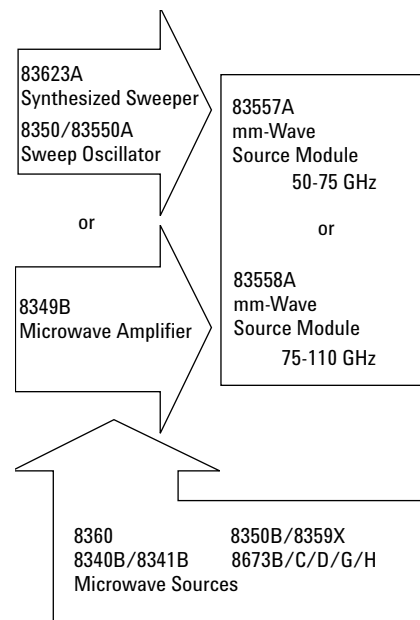
The 83557A/83558A source modules offer harmonic and sub-harmonic suppression of <-20 dBc when used with low harmonic sources like the 8360 series synthesized sweeper, the 8673C/D synthesized signal generators, or the standard 8350B/83550A sweep oscillator. In many mm-wave measurements, low harmonics are important to achieve greater measurement accuracy and increased dynamic range.

## Dedicated sources simplify connections

Use the 83623A synthesized sweeper or the 8350B/83550A sweep oscillator to drive these source modules directly without requiring an external amplifier. With a dedicated source module interface, these sources display both the frequency and the power level at the module's output. Or, choose from a wide range of sources to drive the source modules using an 8349B microwave amplifier. The 8350B sweep oscillator makes an excellent, low-cost, swept source. For increased frequency accuracy and stability, use the 8360 series synthesized sweepers, the 8340/41 series synthesized sweepers, or the 8673 series synthesized signal generators.

## Swept V/W band network analysis

With the 8757 scalar network analyzer, or the 8510 vector network analyzer, complete V and W band measurement systems can be configured using the 8350B, 8360 series, or 8340B/8341B microwave sweepers and the mm-wave source modules. Using the 8757, simultaneous scalar reflection and transmission measurements can be made in waveguide. With the 8510, full S-parameter measurements can be made using two microwave sources and the 83557A/83558A mm-wave modules.



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## Specifications

Specifications describe the instrument's warranted performance over the temperature range 0° to 55°C (except where noted). Supplemental characteristics are intended to provide information useful in applying the instrument by giving typical but non-warranted performance parameters. These are denoted as "typical," "nominal," or "approximately."

<b>Agilent 83557A 50-75 GHz</b>	<b>8350B/83550A or 8350B/83592C/95C 8349B</b>	<b>83623A or 83624A</b>	<b>8341B Opt. 003' 8349B</b>	<b>8673C/D' 8349B</b>
<b>Leveled Power Range</b> (25 ± 5 °C)	-5 to +2 dBm	-5 to +3 dBm	-5 to +2 dBm	-5 to +2 dBm
<b>Unleveled</b> (Opt. 001)	-5 to +4 dBm	-5 to +4 dBm	-5 to +4 dBm	-5 to +4 dBm
<b>Power Level Accuracy</b> (25 ± 5 °C)	±2.5 dB	±2.0 dB	±2.5 dB	±2.5 dB
<b>Power Flatness</b> (Max Leveled Power)	±2.0 dB	±1.5 dB	±2.0 dB	±2.0 dB
<b>Source Output SWR</b>				
<b>Leveled</b>	2.0	2.0	2.0	2.0
<b>Unleveled</b> (Typically)	3.0	3.0	3.0	3.0
<b>Spurious Signals</b> <sup>2</sup>	-20 dBc	-20 dBc	-20 dBc	-20 dBc

<b>Agilent 83558A 75-110 GHz</b>	<b>8350B/83550A or 8350B/83592C/95C 8349B</b>	<b>83623A or 83624A</b>	<b>8341B Opt. 003' 8349B</b>	<b>8673C/D' 8349B</b>
<b>Leveled Power Range</b> (25 ± 5 °C)	-5 to -1 dBm	-5 to 0 dBm	-5 to -1 dBm	-5 to -1 dBm
<b>Unleveled</b> (Opt. 001)	-5 to +1 dBm	-5 to +1 dBm	-5 to +1 dBm	-5 to +1 dBm
<b>Power Level Accuracy</b> (25 ± 5 °C)	±2.5 dB	±2.0 dB	±2.5 dB	±2.5 dB
<b>Power Flatness</b> (Max Leveled Power)	±2.0 dB	±1.5 dB	±2.0 dB	±2.0 dB
<b>Source Output SWR</b>				
<b>Leveled</b>	2.0	2.0	2.0	2.0
<b>Unleveled</b> (Typically)	3.0	3.0	3.0	3.0
<b>Spurious Signals</b>	-20 dBc	-20 dBc	-20 dBc	-20 dBc

## Common Specifications

<b>Frequency Accuracy, Resoluton, and Stability</b>	4 (83557A) or 6 (83558A) times the frequency accuracy, resolution, and stability of the input signal. Accuracy is the same as the time base for synthesized sources.			
<b>External Pulse Modulation On/Off Ratio</b>	>80 dB (>60 dB for 83550A)	>80 dB	>80 dB	>80 dB
<b>Rise/Fall Time</b> (Typically)	10 ns (25 ns for 83550A)	50 ns	50 ns	40 ns
<b>Min Leveled RF Pulse Width</b> (Typically)	1 µs	1 µs	1 µs	1 µs
<b>Amplitude Modulation</b>				
<b>Rate (3 dB BW)</b> (Typically)	DC – 100 kHz	DC – 250 kHz	DC – 100 kHz	DC – 100 kHz
<b>Sensitivity</b> (Typically)	1 dB/V		(100%/V, for synthesized sources)	

1. Specifications apply for low harmonic sources only. The standard 8340B/8341B and the 8673B/G/H also provide the same source capabilities except the spurious output of the modules is at 0 dBc.

2. Expressed in dB relative to the carrier (dBc)

## General Specifications

<b>Input Frequencies</b>	12.5 to 18.75 GHz
<b>Minimum input power level into RF input cable</b>	+17 dBm (50 mW)
<b>Maximum input power level into RF input cable</b>	+27 dBm (0.5 W)
<b>Waveguide output connector 83557A</b>	EIA size WR-15 waveguide. Mates with JAN UG 385 flange.
<b>83558</b>	EIA size WR-10 waveguide. Mates with JAN UG 387 (mod.) flange.
<b>Weight</b>	Net, 1.8 kg (4 lb.)

## Ordering Information

### Agilent 83557A 50 to 75 GHz mm-Wave Source Module

- Option 001** Deletes Leveling Coupler and Detector
- Option 910** Extra Manual
- Option W30** Two Additional Years of Return-to-Agilent Service

### Agilent 83558A 75 to 110 GHz mm-Wave Source Module

- Option 001** Deletes Leveling Coupler and Detector
- Option 910** Extra Manual
- Option W30** Two Additional Years of Return-to-Agilent Service

### Agilent 8349B 2.0 to 20.0 GHz Microwave Amplifier

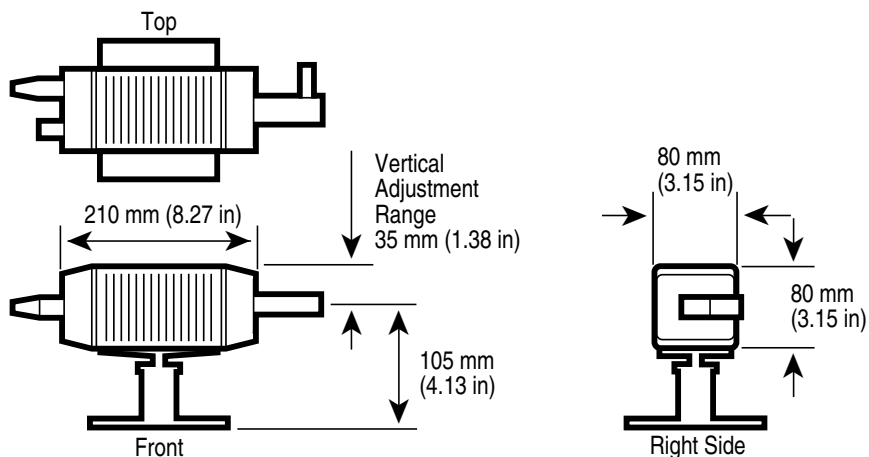
- Option 001** Rear Panel RF Input/Output
- Option 002** Rear Panel RF Input and Front Panel Output
- Option 910** Extra Manual
- Option W30** Two Additional Years of Return-to-Agilent Service

#### Furnished with each 83557A

	<b>Part number</b>
Operating and Service Manual	83557-90019
Procedure and Parts for 8340 Series/83590 Series	
0.5 V/GHz Modification	83557-90016
RF Cable	5061-5359
Source Module Interface	5061-5391
Module Base Assembly	83557-60010

#### Furnished with each 83558A

	<b>Part number</b>
Operating and Service Manual	83558-90019
Procedure and Parts for 8340 Series/83590 Series	
0.5 V/GHz Modification	83558-90016
RF Cable	5061-5359
Source Module Interface	5061-5391
Module Base Assembly	83558-60010



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(fax) (305) 269 7599

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(tel) 0 800 738 378  
(fax) (64 4) 495 8950

Asia Pacific:  
(tel) (852) 3197 7777  
(fax) (852) 2506 9284

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